

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1-8 (cancelled)

9. (new) A method of making flight safe for a rotary wing aircraft, the method comprising:

- a) constructing a route for the aircraft;
- b) causing the aircraft to follow the route thus constructed; and
- c) at least in part while following the route, calculating interference, if any, between the constructed route, a model of the terrain overflown, and parameters relating to the aircraft and to its outside environment, in order to determine a route that is safe; wherein, in order to enable the method to offer the aircraft the capacity to fly in all weathers and at any location, the method further comprises:

- constructing at least the initial segments and possibly the entire route; and

- while following the route, and independently of any instrument flight infrastructure, performing the making-safe operations of step c) on board the aircraft, with acquisition of parameters relating to the terrain overflown, to the aircraft, and to its outside environment, and performing the following operations automatically:

- α) verifying the safety of the actual route of the aircraft;

- β) verifying the safety of the aircraft flight relative to parameters acquired on board; and

γ) providing on board the aircraft assistance in perception by presenting interferences, parameters relating to the terrain overflown, to the aircraft, and to its outside environment.

10. (new) A method according to claim 9, wherein, in step a), in order to determine a safe route for the aircraft, the following steps are performed:

a1) an operator constructs a route for the aircraft using an interactive graphics route-construction tool (7) coupled to an interference calculator (2) and to a memory (4);

a2) determining possible interference between the route and a model of the terrain overflown by the aircraft; and

a3) presenting any interference to the operator to enable the operator to modify the construction of the route so as to cause the interference to disappear, the sequence of said steps a1) to a3) being repeated until all the interference, if any, has disappeared.

11. (new) A method according to claim 9, wherein, during step α) of verifying the safety of the actual route of the aircraft, the following steps are performed:

α1) verifying that the deviation between a theoretical route for the aircraft and the actual position of the aircraft remains less than a predetermined value;

α2) verifying that the immediate future segment of route of the aircraft is safe relative to theoretical terrain; and

α3) verifying that said immediate future segment of route of the aircraft is safe relative to real terrain.

12. (new) A method according to claim 9, wherein, in step cy), at least when the aircraft is close to the ground, images

picked up of the outside environment are superposed on the real outside view.

13. (new) A method according to claim 9, wherein, in step cy), at least while the aircraft is at least at a predetermined distance from the ground, a safety line situated above the relief is superposed on the real outside view.

14. (new) A method according to claim 9, wherein, in step cy), at least some of the following information is presented to a pilot of the aircraft;

- the hypsometric environment;
- the aviation environment; and
- any aircraft situated at a distance from the aircraft that is less than a predetermined distance.

15. (new) Apparatus (1) for making a flight safe under instrument flying conditions and outside instrument flying infrastructures, the apparatus being on board or being capable of being mounted on board a rotary wing aircraft, the apparatus (1) comprising at least:

- means (3) for acquiring parameters relating to the aircraft and to the outside environment;
- display means (6);
- a navigation calculator (8) including an interference calculator (2) associated with a memory (4) for storing a constructed route and with a memory (5) containing a model of the terrain to be overflown;

the apparatus (1) being suitable for implementing the method according to claim 9, and includes at least one interactive graphics route-construction tool (7) coupled to the interference calculator (2) that serves, when actuated by an operator, to display a result on the display means (6)

enabling the safe route to be constructed progressively, which route is stored in the memory (4); and

- a piloting system (9) connected to the interactive tool (7) and to the calculator (8) via a connection (10) and including a piloting screen.

16. (new) Apparatus according to claim 15, including at least one means (12) for providing assistance in perceiving the environment outside the aircraft.